CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

MONITORING AND REPORTING PROGRAM NO. __
FOR
MAXWELL PUBLIC UTILITIES DISTRICT
MAXWELL WASTEWATER TREATMENT FACILITY
COLUSA COUNTY

This Monitoring and Reporting Program (MRP) describes requirements for monitoring the wastewater treatment facility (WWTF) influent and effluent, wastewater treatment and storage ponds, effluent reuse site, groundwater, water supply and biosolids disposal. This MRP is issued pursuant to Water Code Section 13267. The Discharger shall not implement any changes to this MRP unless and until a revised MRP is issued by the Executive Officer.

Central Valley Water Board staff shall approve specific sampling locations prior to any sampling activities. All samples shall be representative of the volume and nature of the discharge or matrix of material sampled. The time, date, and location of each sample shall be recorded on the sample chain of custody form.

Field test instruments (such as those used to test dissolved oxygen, pH, and electrical conductivity) may be used provided that:

1. The user is trained in proper use and maintenance of the instruments;
2. The instruments are field calibrated prior to monitoring events at the frequency recommended by the manufacturer;
3. Instruments are serviced and/or calibrated by the manufacturer at the recommended frequency; and
4. Field calibration reports are submitted as described in the "Reporting" section of this MRP.

NOTE: The groundwater monitoring and reporting requirements of this MRP are <u>effective immediately upon adoption of this Order</u>. The groundwater monitoring and reporting requirements contained herein supersede those contained in MRP No. R5-2009-0009.

All other monitoring and reporting requirements are effective <u>as of the first date of discharge to the new effluent storage pond and effluent reuse site</u>.

Effective immediately, and continuing until the new WWTF is in operation, the Discharger shall submit a monthly *WWTF Improvements Status Report* in accordance with the schedule for Monthly Monitoring Reports contained herein. The status report shall describe all construction and related work completed during the month, state whether construction is proceeding on schedule, and state the expected date that the improved WWTF will be fully operational.

INFLUENT MONITORING

The Discharger shall monitor influent wastewater in accordance with the following. Samples shall be representative of the influent to the first treatment pond. Grab samples are considered representative of the influent. Influent monitoring shall include, at a minimum, the following:

Constituent	Units	Type of Sample	Sampling Frequency	Reporting Frequency
Local precipitation	inches	Rain Gauge Observation [1]	Daily	Monthly
Flow	gpd	Flow Meter Observation	Daily	Monthly
BOD [1]	mg/L	Grab	Monthly	Monthly
Total Suspended Solids	mg/L	Grab	Monthly	Monthly

[1] Using either a properly calibrated and maintained on-site rain gauge or daily results from an appropriately sited precipitation observation station operated by others (specify station name; location; owner; and data source contact information, e.g., internet address).

[2] Five-day, 20° Celsius biochemical oxygen demand.

EFFLUENT MONITORING

The Discharger shall monitor effluent wastewater in accordance with the following. Samples shall be representative of the effluent discharged from the treatment plant to the effluent storage pond after full chlorine contact has been achieved. Grab samples taken from the effluent pipeline just prior to discharge to the effluent storage pond are considered representative. Effluent monitoring shall include, at a minimum, the following:

Constituent	Units	Type of Sample	Sampling Frequency	Reporting Frequency
BOD	mg/L	Grab	Weekly	Monthly
Settleable solids	ml/L	Grab	Weekly	Monthly
Total coliform organisms	MPN/100 mL	Grab	Weekly	Monthly
Electrical conductivity	umhos/cm	Grab	Weekly	Monthly
Total Kjeldahl nitrogen	mg/L	Grab	Monthly	Monthly
Nitrate nitrogen	mg/L	Grab	Monthly	Monthly
Sodium	mg/L	Grab	Quarterly	Monthly [1]
Chloride	mg/L	Grab	Quarterly	Monthly [1]
Boron	mg/L	Grab	Quarterly	Monthly [1]

[1] Results shall be reported in the Monthly Monitoring Report for the month during which samples were obtained.

POND MONITORING

The Discharger shall monitor all ponds at the WWTF and effluent reuse site in accordance with the following. Samples shall be collected from permanent monitoring locations that will provide samples representative of the wastewater in each pond. Freeboard shall be measured vertically from the water surface to the lowest elevation of the pond berm, and shall be measured to the nearest 0.10 feet. Pond monitoring shall include, at a minimum, the following:

Constituent/Parameter	Units	Type of Sample	Sampling Frequency	Reporting Frequency
Freeboard	0.1 feet	Staff Gauge Observation	Weekly	Monthly
Dissolved Oxygen [1]	mg/L	Grab	Weekly [2]	Monthly
pH	pH units	Grab	Weekly	Monthly
Pond berm condition	--	Observation	Weekly	Monthly

[1] Samples shall be collected opposite each pond inlet at a depth of one foot between 0700 and 0900 hours.

[2] If the result for any pond is less than 1.0 mg/L, the sampling frequency shall be increased for a period sufficient to confirm the magnitude and duration of the problem and aid in identification and resolution of the problem in accordance with the Discharge Specifications.

In addition, the Discharger shall inspect the condition of the ponds once per week and document visual observations. Notations shall include observations of:

a. Presence of weeds in the water or along the berm;
b. Accumulations of dead algae, vegetation, scum, or debris on the pond surface;
c. Animal burrows in the berms;
d. Evidence of seepage from the berms or downslope of the P/E ponds
e. Flies or mosquitoes in the water or at the water surface; and
f. The color of the water (e.g., dark sparkling green, dull green, yellow, gray, tan, brown, etc.).

EFFLUENT RECYCLING SITE MONITORING

The Discharger shall monitor effluent reuse activities at the effluent reuse areas in accordance with the following. Reuse area monitoring shall be performed daily and the results shall be included in the monthly monitoring report. Erosion, ground saturation, tailwater runoff, and nuisance conditions shall be noted in the report. Reclaimed water shall also be monitored to determine loading rates at the reuse areas.

Parameter	Units	Type of Sample	Monitoring Frequency	Reporting Frequency
Flow from effluent storage pond to each reuse area [1]	gpd and inches/day	Flow Meter Observation	Daily	Monthly
Rainfall	inches	Measurement	Daily	Monthly
Net Acreage Receiving Recycled Water [1]	acres	Calculated	Daily	Monthly
Nitrogen Loading Rate [2]	lbs/ac/month and cumulative lbs/ac/year	Calculated	Monthly	Monthly
Dissolved Solids Loading Rate	lbs/ac/month and cumulative lbs/ac/year	Calculated	Monthly	Monthly

[1] Specific reuse areas shall be identified.
[2] Including contributions from applied fertilizer.

GROUNDWATER MONITORING

Effective immediately, the Discharger shall establish a quarterly sampling schedule for groundwater monitoring.

These monitoring requirements apply to all existing monitoring wells, as well as those constructed after issuance of this MRP. Prior to construction of any additional groundwater monitoring wells, the Discharger shall submit a *Monitoring Well Installation Workplan* for review and approval. Once installed, all new monitoring wells shall be added to the MRP, and shall be sampled and analyzed according to the schedule below.

Prior to well purging, groundwater elevations shall be measured. Depth to groundwater shall be measured to the nearest 0.01 feet. Water table elevations shall be calculated and used to determine groundwater gradient and direction of flow. The monitoring wells shall be purged of at least three well volumes or until temperature, pH, and electrical conductivity have stabilized. Samples shall be collected and analyzed using approved EPA methods. Groundwater monitoring shall include, at a minimum, the following:

Constituent	Units	Type of Sample	Sampling Frequency	Reporting Frequency
Depth to groundwater	0.01 feet	Measurement	Quarterly	Semi-Annual
Groundwater elevation [1]	0.01 feet	Calculated	Quarterly	Semi-Annual

Constituent	Units	Type of Sample	Sampling Frequency	Reporting Frequency
Gradient	feet/feet	Calculated	Quarterly	Semi-Annual
Gradient direction	Degrees	Calculated	Quarterly	Semi-Annual
pH	pH units	Grab	Quarterly	Semi-Annual
Electrical conductivity	umhos/cm	Grab	Quarterly	Semi-Annual
Total dissolved solids	mg/L	Grab	Quarterly	Semi-Annual
Nitrate nitrogen	mg/L	Grab	Quarterly	Semi-Annual
Ammonia nitrogen	mg/L	Grab	Quarterly	Semi-Annual
Total Kjeldahl nitrogen	mg/L	Grab	Quarterly	Semi-Annual
Total coliform organisms [2]	MPN/100 ml	Grab	Quarterly	Semi-Annual
Standard minerals [3]	mg/L	Grab	Quarterly [4]	Semi-Annual
Metals [5]	ug/L	Grab	Quarterly [4]	Semi-Annual

1 Groundwater elevations shall be determined based on depth-to-water measurements using a surveyed elevation reference point on the well casing.

2 Using a minimum of 15 tubes or three dilutions.

3 Standard Minerals shall include, at a minimum, the following elements/compounds: boron, bromide, calcium, chloride, fluoride, magnesium, phosphate, potassium, sodium, sulfate, total alkalinity (including alkalinity series), and hardness as $CaCO_3$.

4 Standard minerals and metals shall be analyzed for at least six consecutive quarters to support the Background Groundwater Quality Study. Following completion of that study, monitoring for standard minerals and metals is not required.

5 At a minimum, the following metals shall be included: arsenic, copper, lead, iron, manganese, nickel, and zinc. Samples tested for metals shall be filtered prior to preservation to ensure that analytical results report dissolved concentrations.

WATER SUPPLY MONITORING

The Discharger shall monitor the community water supply wells as required by the California Department of Public Health and shall report the following minimum monitoring data for each water supply well to the Central Valley Water Board:

Constituent	Units	Type of Sample	Sampling Frequency	Reporting Frequency
Volume pumped to community distribution system	MG	--	--	Annually
Total dissolved solids	mg/L	Grab	Annually	Annually
Electrical Conductivity	umhos/cm	Grab	Annually	Annually
Nitrate nitrogen	mg/L	Grab	Annually	Annually

Constituent	Units	Type of Sample	Sampling Frequency	Reporting Frequency
Standard minerals [1]	mg/L	Grab	Annually	Annually
Metals [2]	ug/L	Grab	Annually	Annually

[1] Standard Minerals shall include, at a minimum, the following elements/compounds: boron, bromide, calcium, chloride, fluoride, magnesium, phosphate, potassium, sodium, sulfate, total alkalinity (including alkalinity series), and hardness as $CaCO_3$.

[2] At a minimum, the following metals shall be included: arsenic, copper, lead, iron, manganese, nickel, and zinc. Analytical methods shall be selected to provide reporting limits below the applicable water quality limit for each constituent.

BIOSOLIDS MONITORING

The Discharger shall keep records regarding biosolids generated by the treatment processes, including any analytical test results; the quantity of biosolids removed for disposal; the quantity of biosolids removed from the ponds and temporarily stored on site; and steps taken to prevent nuisance conditions. Records shall be stored onsite and available for review during inspections.

If biosolids are transported off-site for disposal, then the Discharger shall submit records identifying the hauling company, the amount of biosolids transported, the date removed from the facility, the disposal facility name and address, and copies of all analytical data required by the entity accepting the waste. These records shall be submitted as part of the Annual Monitoring Report.

REPORTING

In reporting monitoring data, the Discharger shall arrange the data in tabular form so that the date, sample type (e.g., influent, effluent, etc.), and reported analytical result for each sample are readily discernible. The data shall be summarized in such a manner to clearly illustrate compliance with waste discharge requirements and spatial or temporal trends, as applicable. The results of any monitoring done more frequently than required at the locations specified in the Monitoring and Reporting Program shall be reported to the Central Valley Water Board.

A. Monthly Monitoring Reports

Monthly Monitoring Reports shall be submitted to the Central Valley Water Board on the **1st day of the second month following sampling** (i.e. the January Report is due by 1 March). Each report shall bear the certification and signature of the Discharger's authorized representative. At a minimum, the monthly monitoring reports shall include:

1. Results of the following monitoring:
    a. Influent monitoring (including calculation of monthly average flow, monthly total flow, and total precipitation);

b. Effluent monitoring;
c. Pond monitoring; and
d. Water reuse area monitoring.

2. A comparison of monitoring data to the discharge specifications and effluent limitations, disclosure of any violations of the WDRs, and an explanation of any violation of those requirements. Data shall be presented in tabular format.

3. Copies of current calibration logs for all field test instruments.

4. Copies of laboratory analytical report(s).

5. A summary pond condition inspection report that includes dates of inspection, problems identified, repairs recommended, repairs completed, and dates of completion.

B. Semi-Annual Monitoring Reports

The Discharger shall submit semi-annual monitoring reports to the Central Valley Water Board by the **1st day of August and February** each year.

As required by the California Business and Professions Code Sections 6735, 7835, and 7835.1, all Quarterly Monitoring Reports shall be prepared under the direct supervision of a registered Professional Engineer or Geologist and signed by the registered professional.

The Semi-Annual Monitoring Report shall include the following for each of the previous two calendar quarters:

1. Results of groundwater monitoring.

2. A narrative description of all preparatory, monitoring, sampling, and analytical testing activities for the groundwater monitoring. The narrative shall be sufficiently detailed to verify compliance with the WDRs, this MRP, and the Standard Provisions and Reporting Requirements. The narrative shall be supported by field logs for each well documenting depth to groundwater; parameters measured before, during, and after purging; method of purging; calculation of casing volume; and total volume of water purged.

3. Calculation of groundwater elevations, an assessment of groundwater flow direction and gradient on the date of measurement, comparison of previous flow direction and gradient data, and discussion of seasonal trends, if any.

4. A narrative discussion of the analytical results for all groundwater locations monitored including spatial and temporal tends, with reference to summary data tables, graphs, and appended analytical reports (as applicable).

5. A comparison of monitoring data to the groundwater limitations and an explanation of any violation of those requirements.

6. Summary data tables of historical and current water table elevations and analytical results.

7. A scaled map showing relevant structures and features of the facility, the locations of monitoring wells and any other sampling stations, and groundwater elevation contours referenced to mean sea level datum.

8. Copies of laboratory analytical report(s) for groundwater monitoring.

C. Annual Report

An Annual Report shall be prepared as the second semi-annual monitoring report. The Annual Report shall include all monitoring data required in the monthly/quarterly schedule. The Annual Report shall be submitted to the Central Valley Water Board by **1 February** each year. In addition to the data normally presented, the Annual Report shall include the following:

1. The contents of the semi-annual monitoring report for the last half of the year.

2. Analytical results for all water supply and other annual monitoring.

3. If requested by staff, tabular and graphical summaries of all data collected during the year.

4. An evaluation of the performance of the WWTF, including discussion of capacity issues, infiltration and inflow (I/I) rates, pond sludge layer thickness, nuisance conditions, and a forecast of the flows anticipated in the next year.

5. An evaluation of the groundwater quality beneath the wastewater treatment facility.

6. A discussion of compliance and the corrective action taken, as well as any planned or proposed actions needed to bring the discharge into full compliance with the waste discharge requirements.

7. A discussion of any data gaps and potential deficiencies/redundancies in the monitoring system or reporting program.

8. Summary of information on the disposal of biosolids as described in the “Biosolids Monitoring” section.

9. The names of all certified wastewater treatment plant operators and OITs employed to operate, maintain, and/or monitor the WWTF; the number of hours per day that each is actively engaged in those functions; and a copy of the current certification for each operator and OIT.

10. A discussion of the following:

    a. Specific I/I evaluation and reduction tasks completed during the year;

    b. As applicable, specific salinity reduction efforts implemented in accordance with the

approved *Salinity Evaluation and Minimization Plan*;

c. As applicable, specific best practical treatment and control measures implemented pursuant to the approved *BPTC Evaluation Workplan* (if one was required by the Executive Officer); and

d. As applicable, an evaluation of the effectiveness of the salinity reduction/BPTC measures that were implemented based on monitoring data.

A letter transmitting the self-monitoring reports shall accompany each report. The letter shall include a discussion of requirement violations found during the reporting period, and actions taken or planned for correcting noted violations, such as operation or facility modifications. If the Discharger has previously submitted a report describing corrective actions and/or a time schedule for implementing the corrective actions, reference to the previous correspondence will be satisfactory. The transmittal letter shall contain the penalty of perjury statement by the Discharger, or the Discharger's authorized agents, as described in the Standard Provisions General Reporting Requirements Section B.3.

The Discharger shall implement the above monitoring program as of the date of this Order.

Ordered by: _____
PAMELA C. CREEDON, Executive Officer

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(Date)

ALO:09/24/2009